

Belle data and generic MC

$$\begin{array}{ll} B^+ \rightarrow \bar{D}^0 \pi^+ & 4.61 \times 10^{-3} \\ \bar{D}^0 \rightarrow K^+ \pi^- & 3.947 \% \end{array}$$

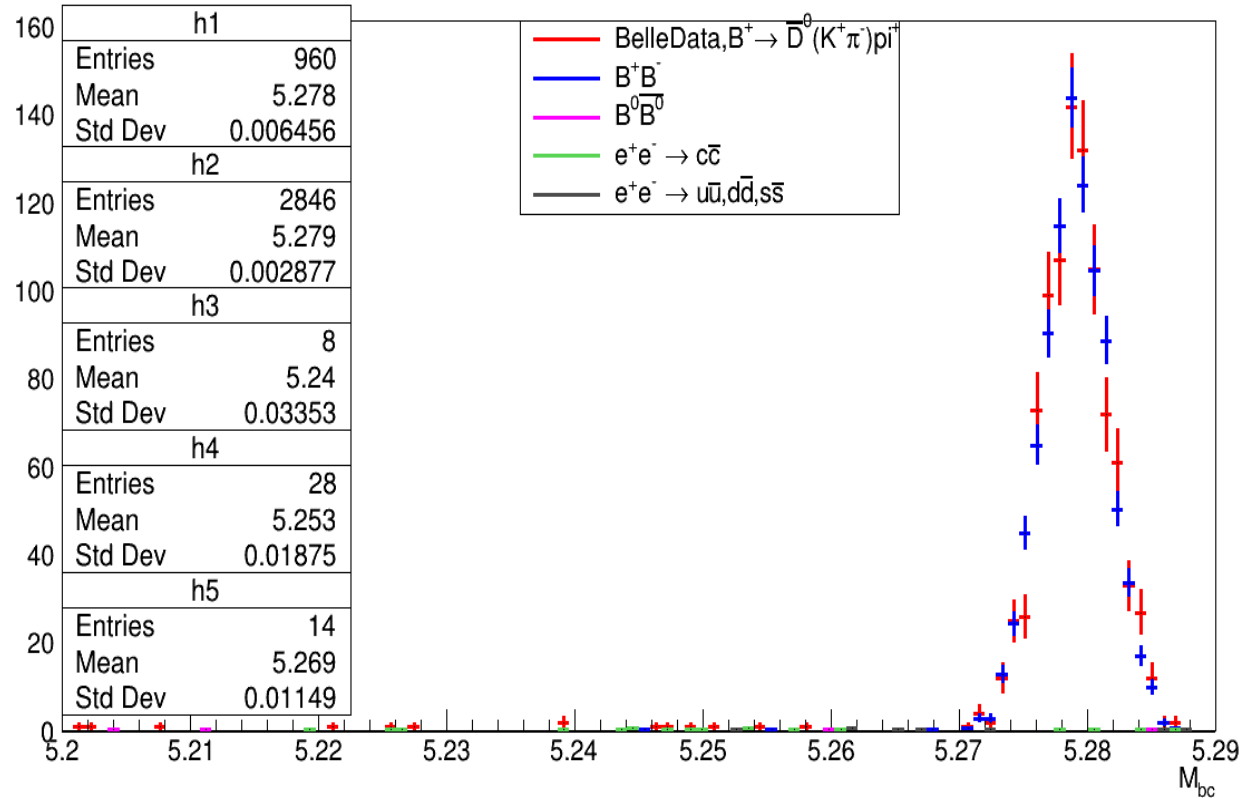
All Belle experiments data and 3.0 streams of generic MC

21 May 2024

M_{bc}

Cuts applied

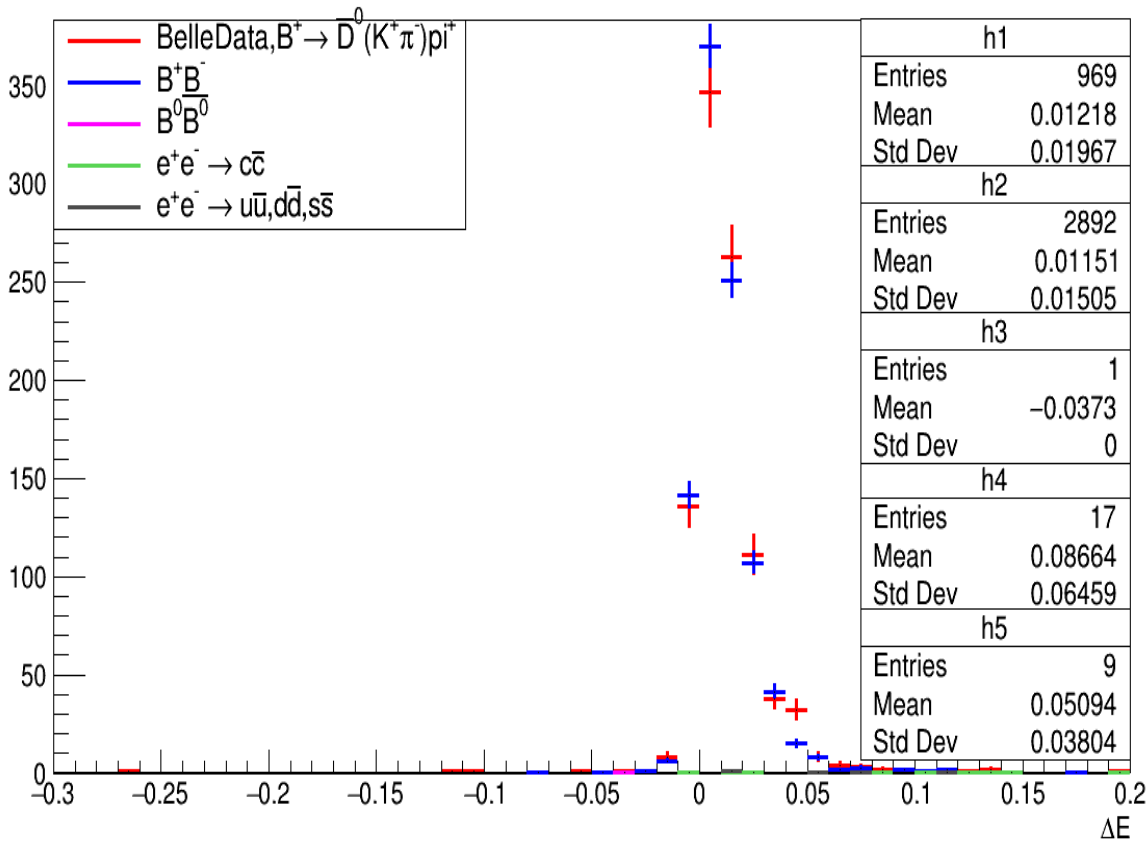
- Rank 1
- $-0.050 < \Delta E < 0.050$ GeV
- $\text{abs}(\sin_phi) < 1.0$
- $\text{abs}(\cos(p_{Btag}, p_{vistag})) < 1.2$
- $1.83 < m_D < 1.89$ GeV
- $1.7 < m_{hadROE} < 2.2$ GeV



ΔE

Cuts applied

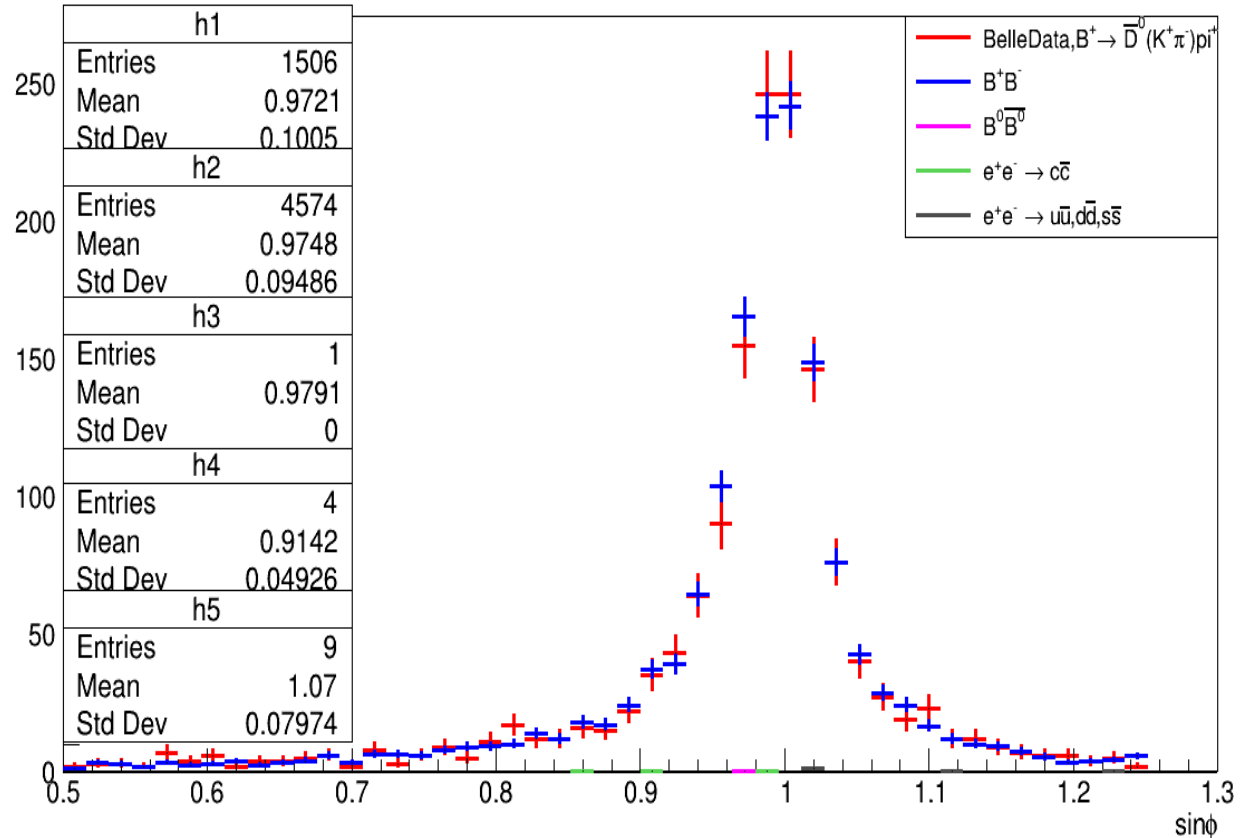
- Rank 1
- $M_{bc} > 5.27$ GeV
- $\text{abs}(\sin_phi) < 1.0$
- $\text{abs}(\cos(p_{Btag}, p_{vistag})) < 1.2$
- $1.83 < m_D < 1.89$ GeV
- $1.7 < m_{hadROE} < 2.2$ GeV



Sin_phi

Cuts applied

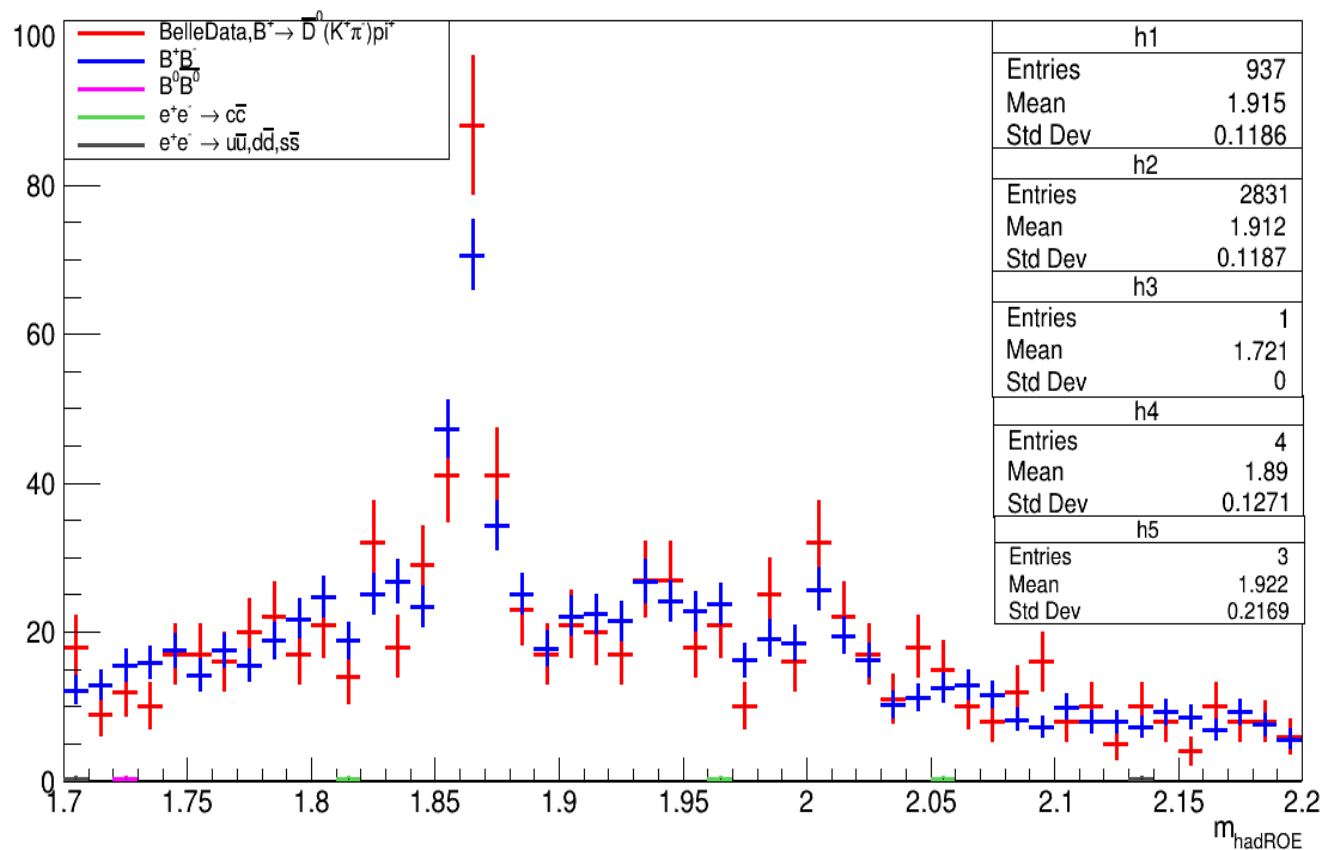
- Rank 1
- $M_{bc} > 5.27$ GeV
- $-0.050 < \Delta E < 0.050$ GeV
- $\text{abs}(\cos(p_{\text{Btag}}, p_{\text{vistag}})) < 1.2$
- $1.83 < m_D < 1.89$ GeV
- $1.7 < m_{\text{hadROE}} < 2.2$ GeV



m_hadROE

Cuts applied

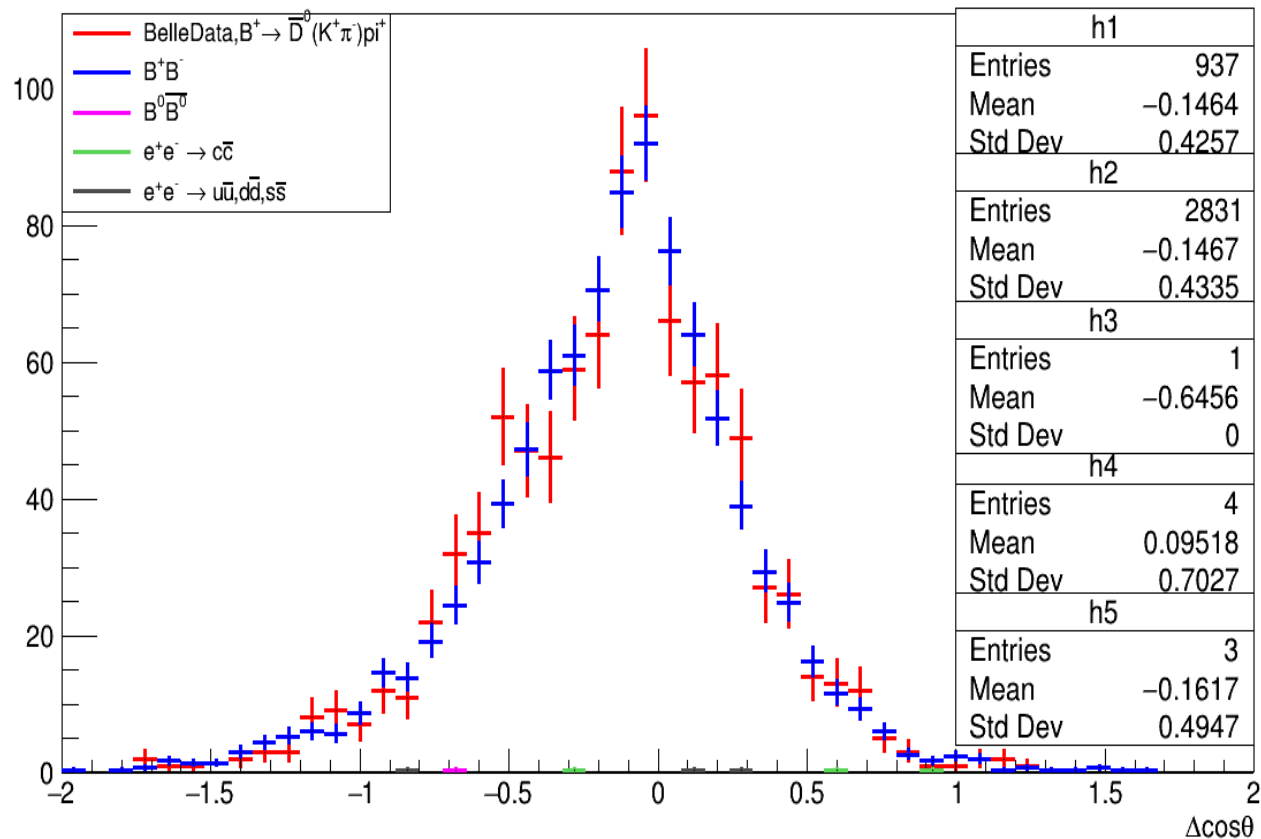
- Rank 1
- $M_{bc} > 5.27$ GeV
- $-0.050 < \Delta E < 0.050$ GeV
- $\text{abs}(\sin_phi) < 1.0$
- $\text{abs}(\cos(p_{Btag}, p_{vstag})) < 1.2$
- $1.83 < m_D < 1.89$ GeV
- $1.7 < m_{hadROE} < 2.2$ GeV



Best sum of cosine angles

Cuts applied

- Rank 1
- $M_{bc} > 5.27$ GeV
- $-0.050 < \Delta E < 0.050$ GeV
- $\text{abs}(\sin_phi) < 1.0$
- $\text{abs}(\cos(p_{B\text{tag}}, p_{v\text{istag}})) < 1.2$
- $1.83 < m_D < 1.89$ GeV
- $1.7 < m_{\text{hadROE}} < 2.2$ GeV

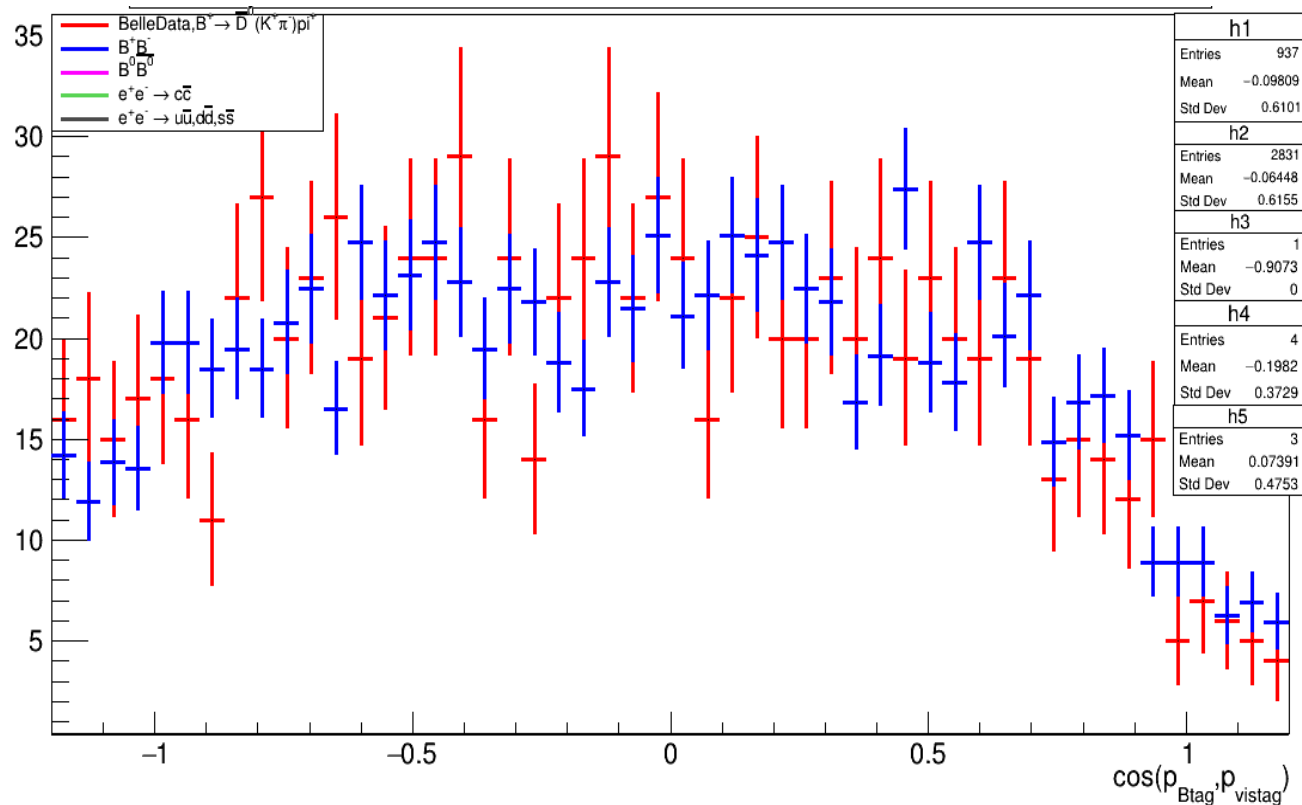


Back up

$\cos(p_{B\text{tag}}, p_{\text{vistag}})$

Cuts applied

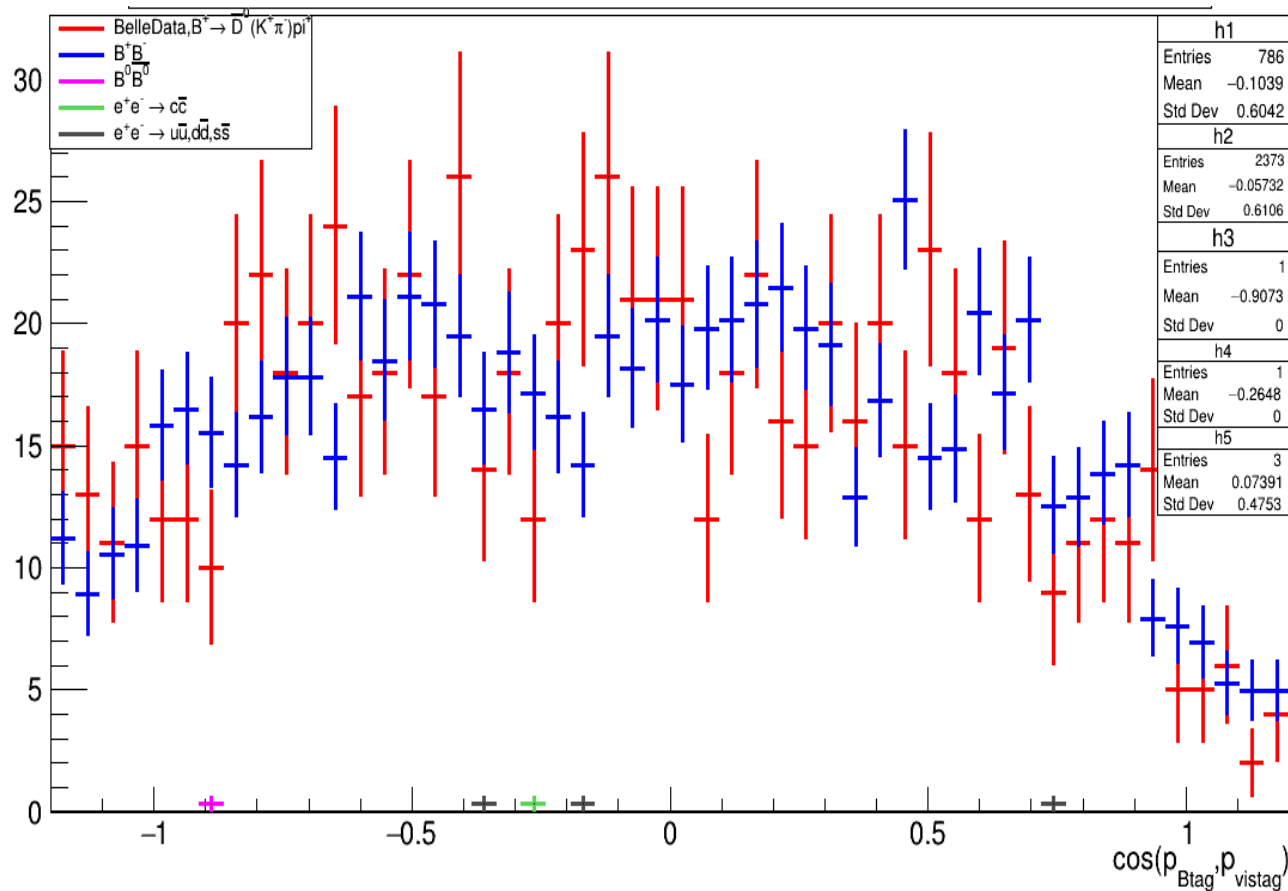
- Rank 1
- $M_{bc} > 5.27$ GeV
- $-0.050 < \Delta E < 0.050$ GeV
- $\text{abs}(\sin_phi) < 1.0$
- $\text{abs}(\cos(p_{B\text{tag}}, p_{\text{vistag}})) < 1.2$
- $1.83 < m_D < 1.89$ GeV
- $1.7 < m_{\text{hadROE}} < 2.2$ GeV



$\cos(p_{B\text{tag}}, p_{\text{vistag}})$

Cuts applied

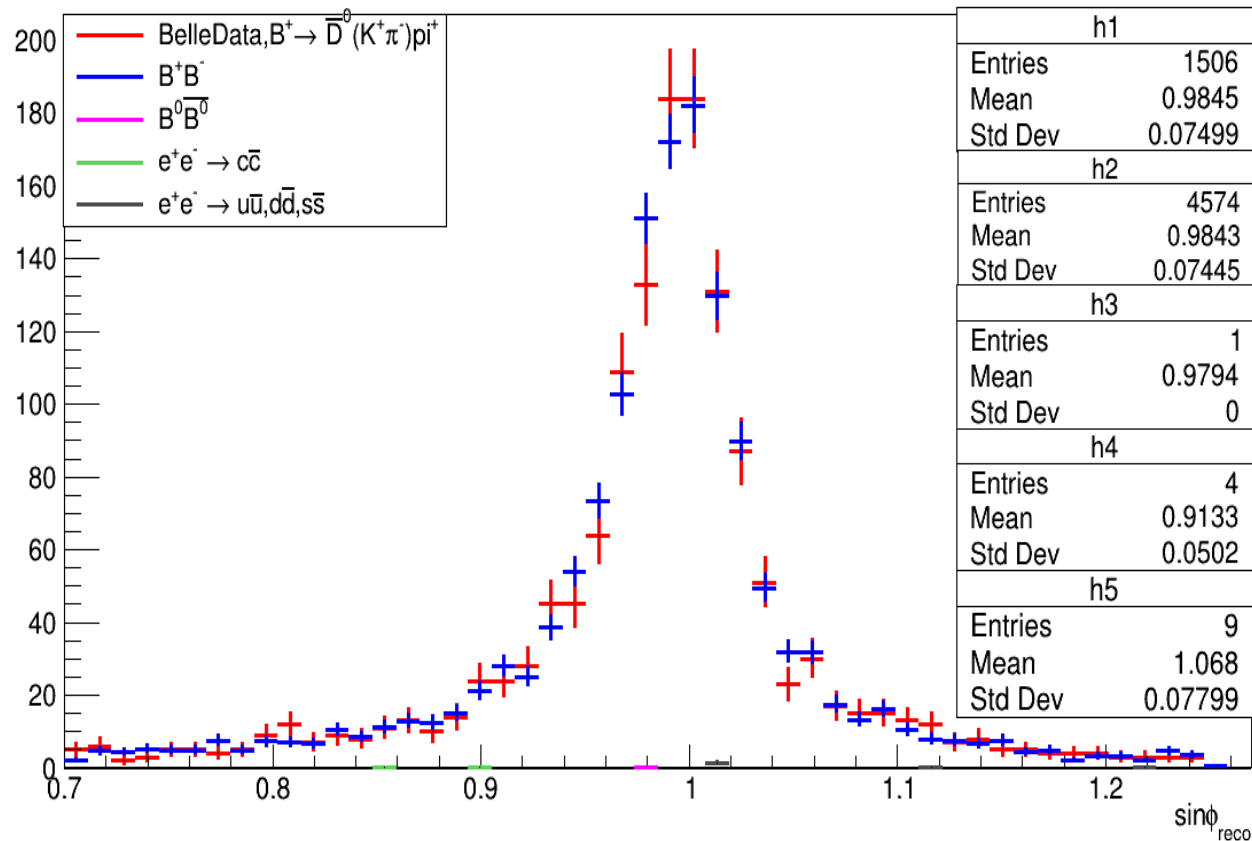
- Rank 1
- $n\text{Leptons} == 1$
- $M_{bc} > 5.27 \text{ GeV}$
- $-0.050 < \Delta E < 0.050 \text{ GeV}$
- $\text{abs}(\sin_phi) < 1.0$
- $\text{abs}(\cos(p_{B\text{tag}}, p_{\text{vistag}})) < 1.2$
- $1.83 < m_D < 1.89 \text{ GeV}$
- $1.7 < m_{\text{hadROE}} < 2.2 \text{ GeV}$



Sin_phi_reco

Cuts applied

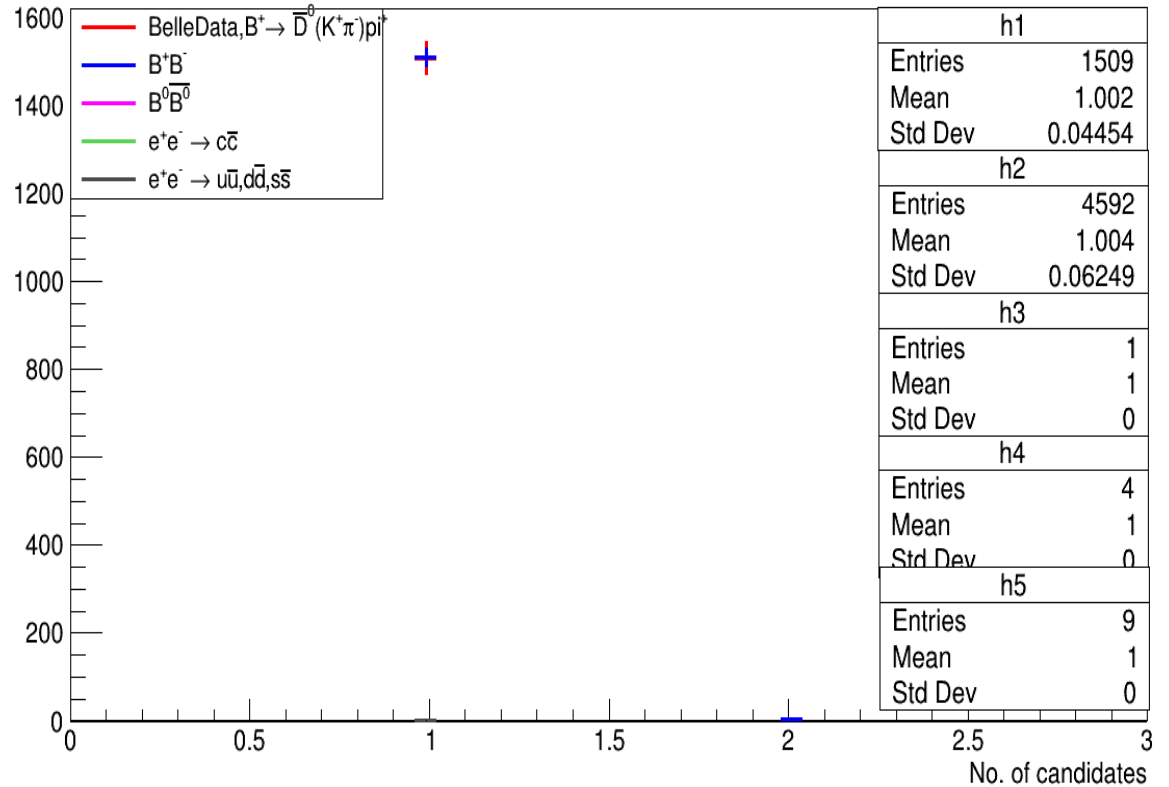
- Rank 1
- $M_{bc} > 5.27$ GeV
- $-0.050 < \Delta E < 0.050$ GeV
- $\text{abs}(\cos(p_{\text{Btag}}, p_{\text{vistag}})) < 1.2$
- $1.83 < m_D < 1.89$ GeV
- $1.7 < m_{\text{hadROE}} < 2.2$ GeV



Number of candidates

Cuts applied

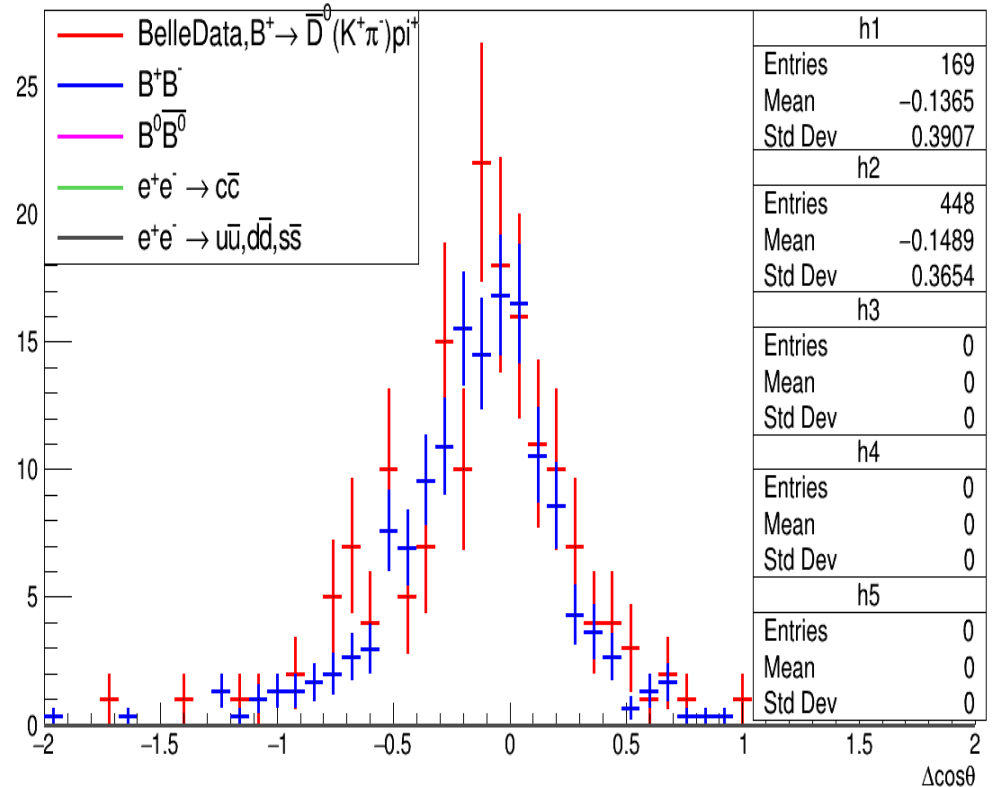
- $M_{bc} > 5.27$ GeV
- $-0.050 < \Delta E < 0.050$ GeV
- $\text{abs}(\cos(p_{B\text{tag}}, p_{\text{vistag}})) < 1.2$
- $1.83 < m_D < 1.89$ GeV
- $1.7 < m_{\text{hadROE}} < 2.2$ GeV



Best sum around D^0

Cuts applied

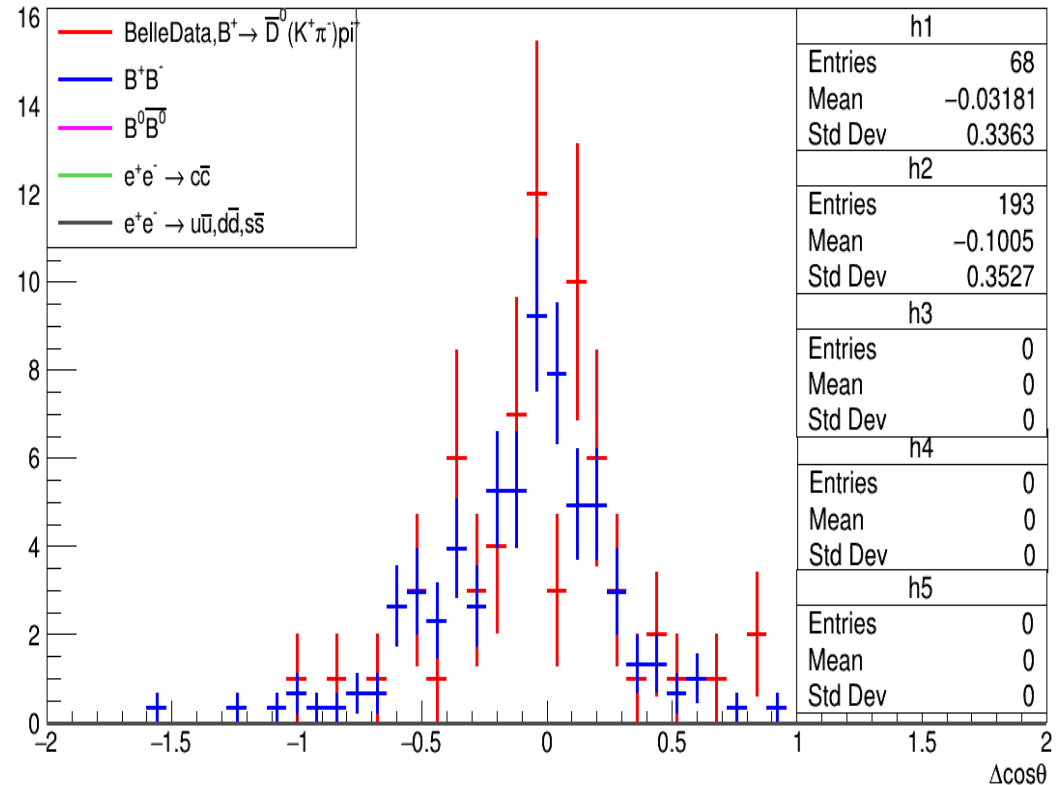
- Rank 1
- $M_{bc} > 5.27$ GeV
- $-0.050 < \Delta E < 0.050$ GeV
- $\text{abs}(\sin_phi) < 1.0$
- $\text{abs}(\cos(p_{Btag}, p_{vistag})) < 1.2$
- $1.83 < m_D < 1.89$ GeV
- $1.7 < m_{hadROE} < 2.2$ GeV
- $\text{abs}(m_{hadROE} - 1.86) < 0.015$ GeV



Best sum around D^*

Cuts applied

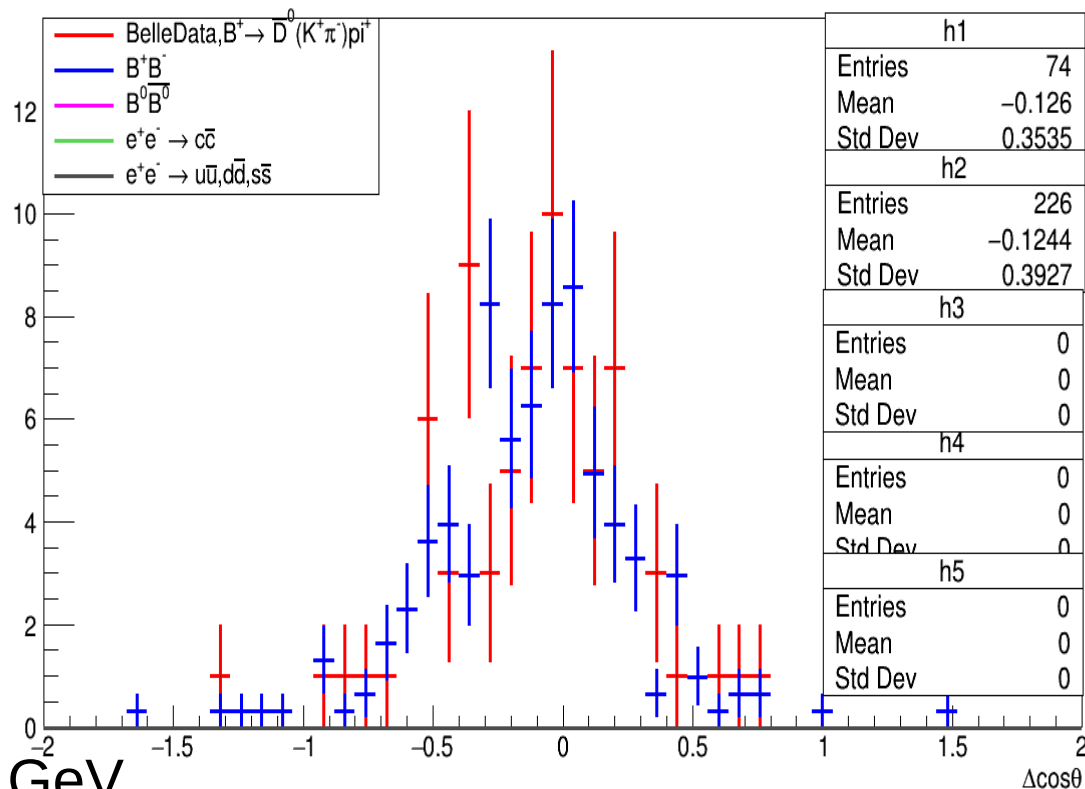
- Rank 1
- $M_{bc} > 5.27$ GeV
- $-0.050 < \Delta E < 0.050$ GeV
- $\text{abs}(\sin_phi) < 1.0$
- $\text{abs}(\cos(p_{Btag}, p_{vistag})) < 1.2$
- $1.83 < m_D < 1.89$ GeV
- $1.7 < m_{hadROE} < 2.2$ GeV
- $\text{abs}(m_{hadROE} - 2.006) < 0.015$ GeV



Best sum b/w D and D*

Cuts applied

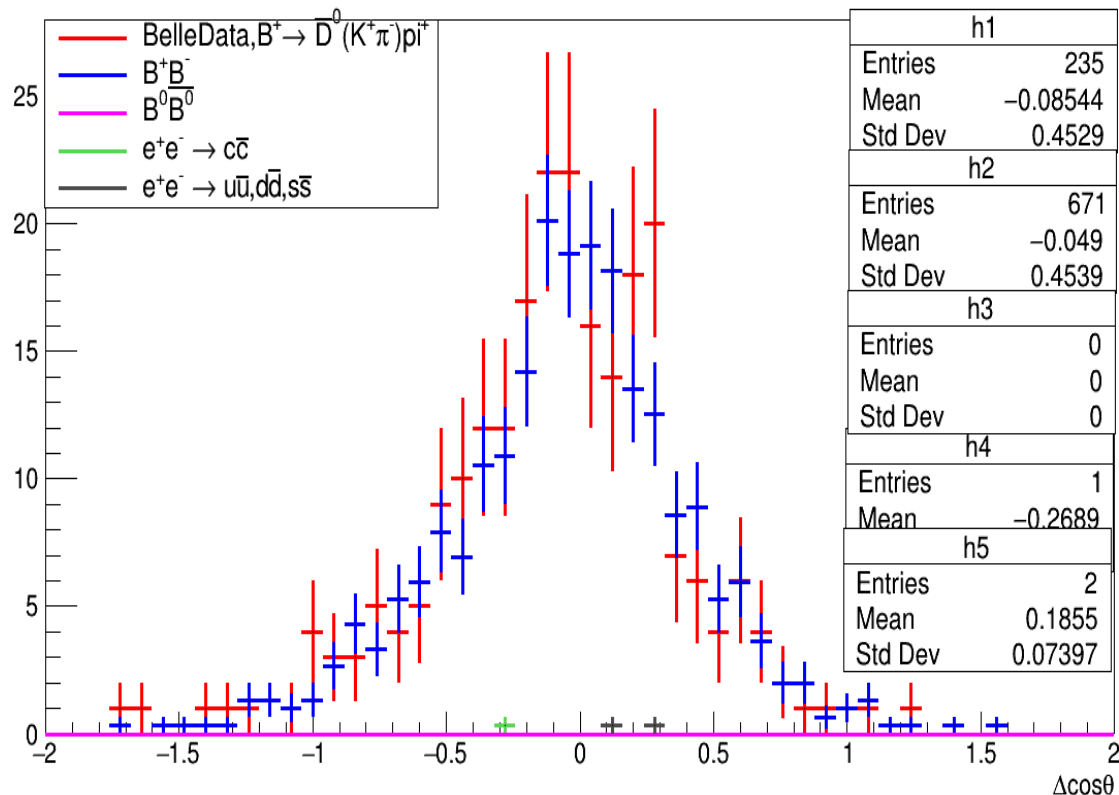
- Rank 1
- $M_{bc} > 5.27$ GeV
- $-0.050 < \Delta E < 0.050$ GeV
- $\text{abs}(\sin_phi) < 1.0$
- $\text{abs}(\cos(p_{B\text{tag}}, p_{v\text{istag}})) < 1.2$
- $1.83 < m_D < 1.89$ GeV
- $1.7 < m_{\text{hadROE}} < 2.2$ GeV
- $\text{abs}(m_{\text{hadROE}} - 1.94) < 0.015$ GeV



Best sum greater than D^*

Cuts applied

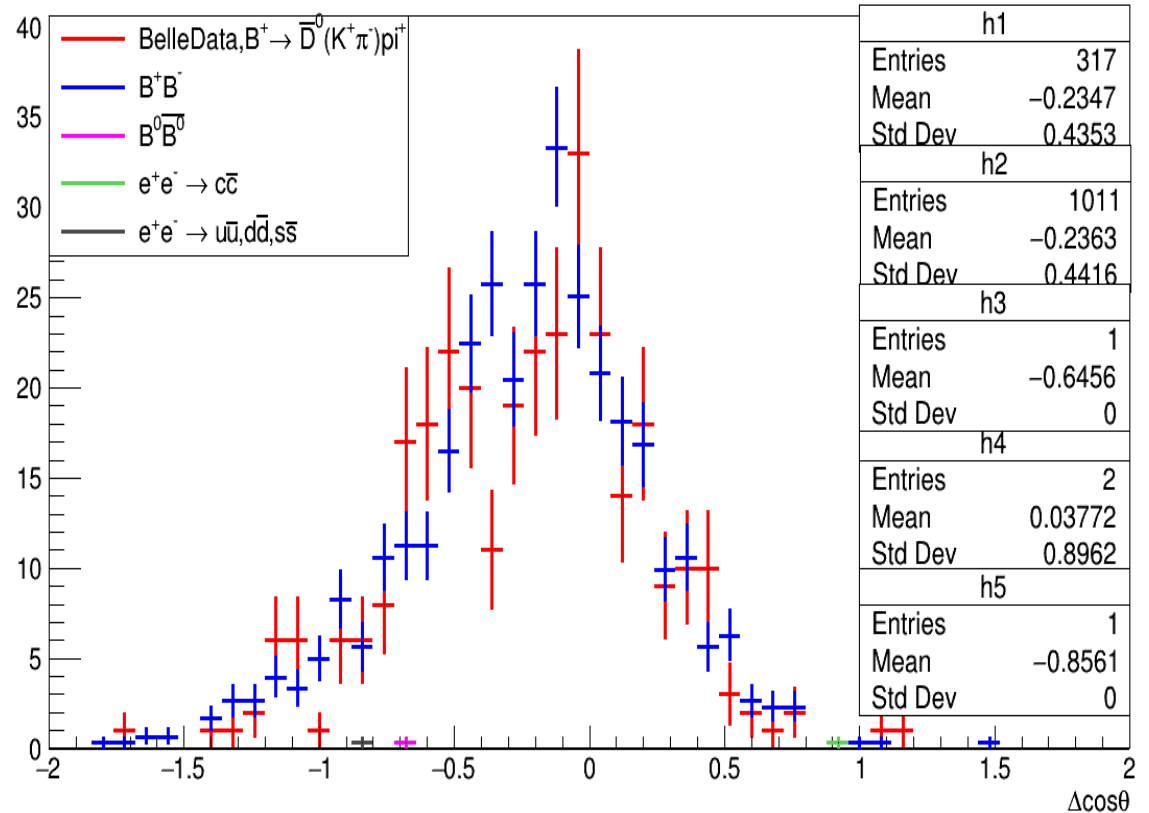
- Rank 1
- $M_{bc} > 5.27$ GeV
- $-0.050 < \Delta E < 0.050$ GeV
- $\text{abs}(\sin_phi) < 1.0$
- $\text{abs}(\cos(p_{Btag}, p_{vistag})) < 1.2$
- $1.83 < m_D < 1.89$ GeV
- $1.7 < m_{hadROE} < 2.2$ GeV
- $M_{hadROE} > 2.006$ GeV



Best sum less than D

Cuts applied

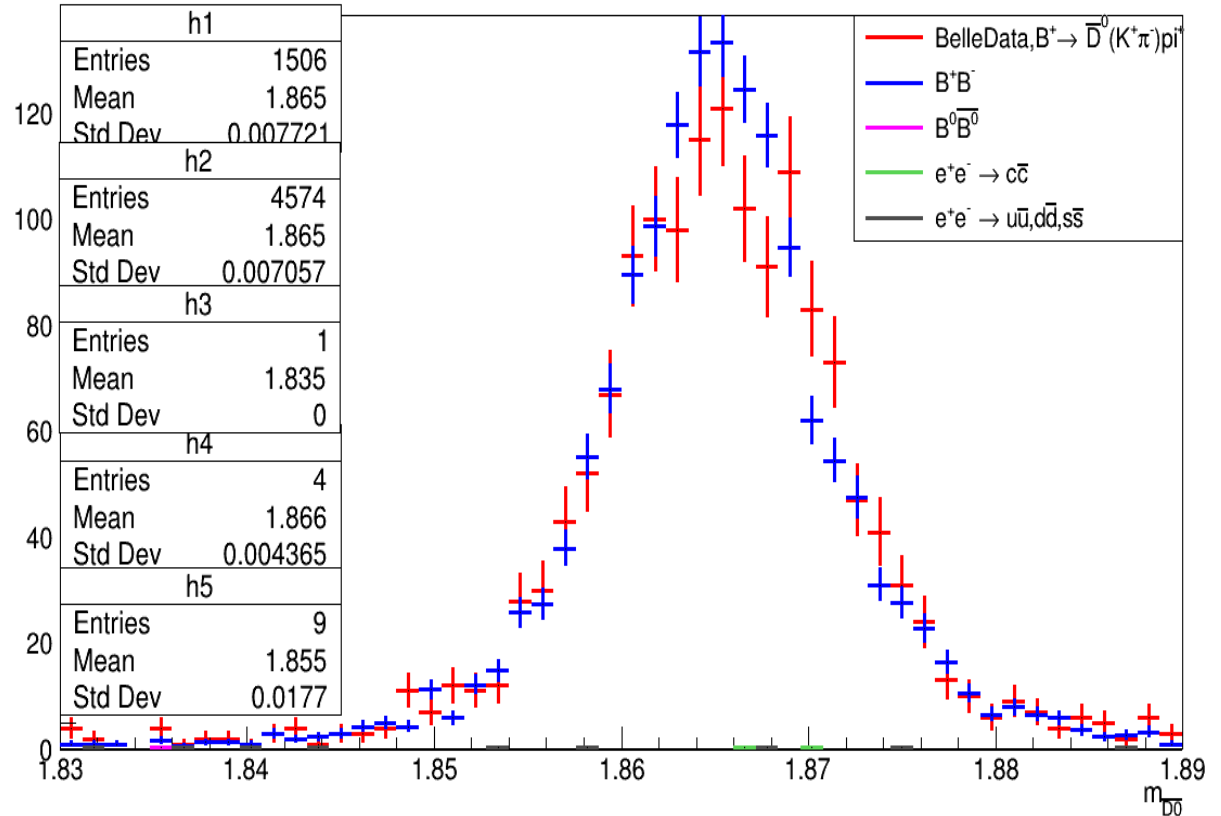
- Rank 1
- $M_{bc} > 5.27 \text{ GeV}$
- $-0.050 < \Delta E < 0.050 \text{ GeV}$
- $\text{abs}(\sin_phi) < 1.0$
- $\text{abs}(\cos(p_{Btag}, p_{vistag})) < 1.2$
- $1.83 < m_D < 1.89 \text{ GeV}$
- $1.7 < m_{hadROE} < 2.2 \text{ GeV}$
- $M_{hadROE} < 1.86 \text{ GeV}$



m_{D^0}

Cuts applied

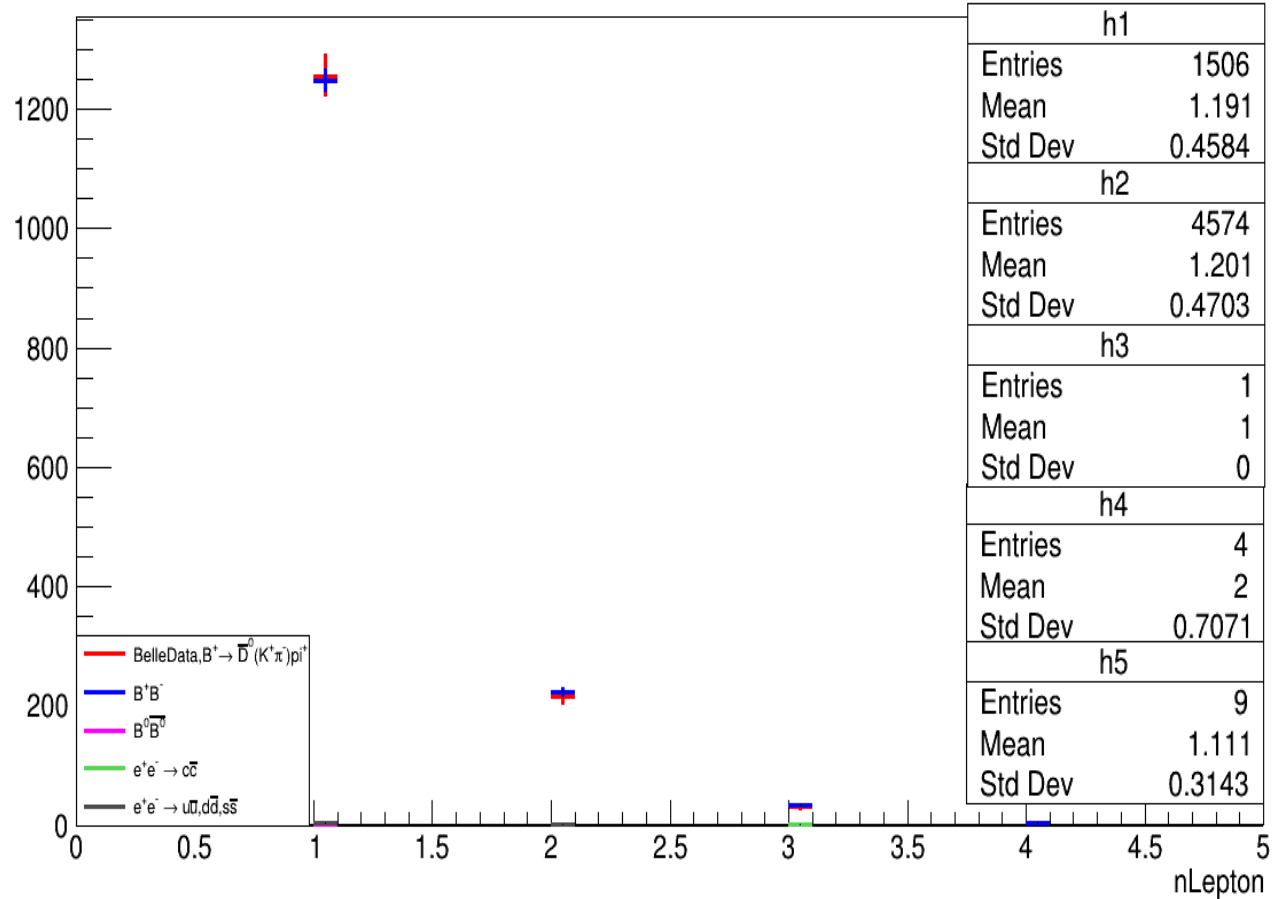
- Rank 1
- $M_{bc} > 5.27$ GeV
- $-0.050 < \Delta E < 0.050$ GeV
- $\text{abs}(\sin_phi) < 1.0$
- $\text{abs}(\cos(p_{B\text{tag}}, p_{v\text{istag}})) < 1.2$
- $1.83 < m_D < 1.89$ GeV
- $1.7 < m_{\text{hadROE}} < 2.2$ GeV



nLeptons

Cuts applied

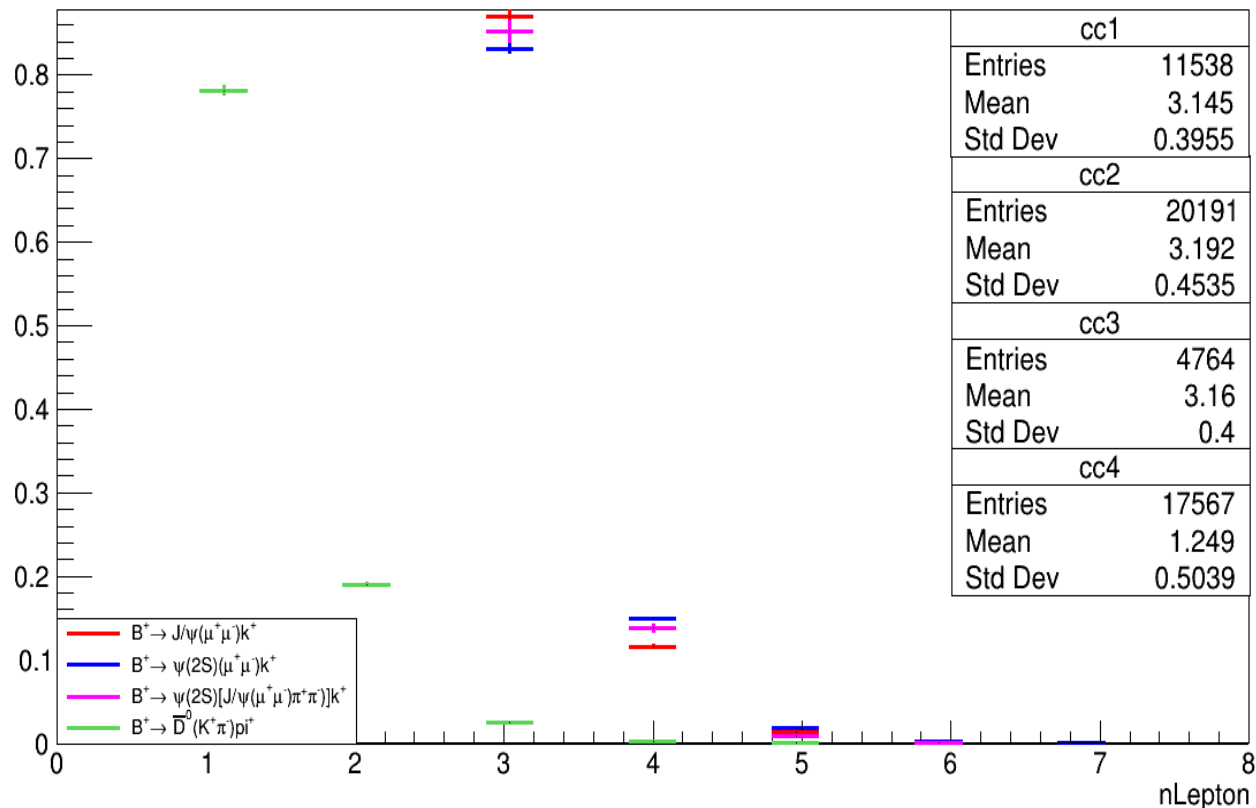
- Rank 1
- $M_{bc} > 5.27$ GeV
- $\text{abs}(\sin_phi) < 1.0$
- $-0.050 < \Delta E < 0.050$ GeV
- $\text{abs}(\cos(p_{Btag}, p_{vistag})) < 1.2$
- $1.83 < m_D < 1.89$ GeV
- $1.7 < m_{hadROE} < 2.2$ GeV



Other control channel modes

Cuts applied

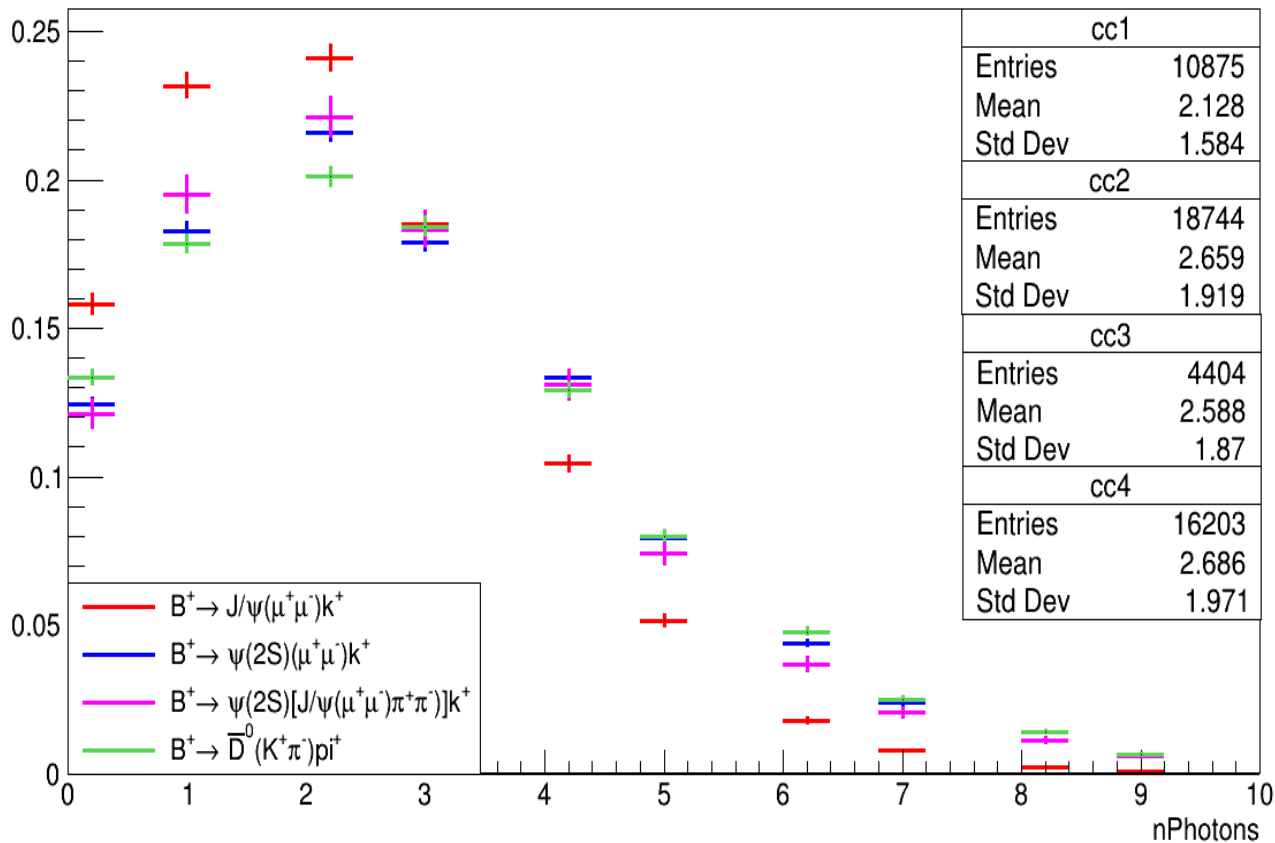
- Rank 1
- $M_{bc} > 5.27$ GeV
- $-0.050 < \Delta E < 0.050$ GeV
- $\text{abs}(\cos(p_{B\text{tag}}, p_{\text{vistag}})) < 1.0$
- $\text{abs}(\sin_phi) < 1.25$
- $1.83 < m_D < 1.89$ GeV
- $1.7 < m_{\text{hadROE}} < 2.2$ GeV



Other control channel modes

Cuts applied

- Rank 1
- $M_{bc} > 5.27$ GeV
- $-0.050 < \Delta E < 0.050$ GeV
- $\text{abs}(\cos(p_{B\text{tag}}, p_{\text{vistag}})) < 1.0$
- $\text{abs}(\sin_phi) < 1.25$
- $1.83 < m_D < 1.89$ GeV
- $1.7 < m_{\text{hadROE}} < 2.2$ GeV



Other control channel modes

Cuts applied

- Rank 1
- **nLeptons == 1**
- $M_{bc} > 5.27$ GeV
- $-0.050 < \Delta E < 0.050$ GeV
- $\text{abs}(\cos(p_{\text{Btag}}, p_{\text{vistag}})) < 1.0$
- $\text{abs}(\sin_{\text{phi}}) < 1.25$
- $1.83 < m_{\text{D}} < 1.89$ GeV
- $1.7 < m_{\text{hadROE}} < 2.2$ GeV

